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ABSTRACT

This fact sheet offers basic instructions on connecting to the ERIC database for individuals who own or have access to a microcomputer and are familiar with ERIC and how to search it through a database terminal. Software, hardware, and telephone line components necesary to make a microcomputer act as a database terminal are outlined. The discussion of software describes the need for a terminal emulator and lists desirable features for terminal software, including the capabilities to print and save, access to command mode, format display, default setting, and a status indicator. Considerations in configuring the software to allow interface or access to database vendors is explained and contact telephone numbers for DIALOG, BRS, and SDC (the three major vendors) are listed. The discussion of hardware requirements covers parallel transmission, the communications interface, modems, and data transmission speed. A list of popular microcomputers and the necessary hardware and software components required to access the vendors includes the following models: Apple II, II+, IIe; Atari 400/800; Commodore VIC, Commodore PET/CBM; IBM Personal Computer; Texas Instruments 99/4, 99/4a; and TRS-80 Models I, II, and III. (LMM)

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ERIC DIGEST

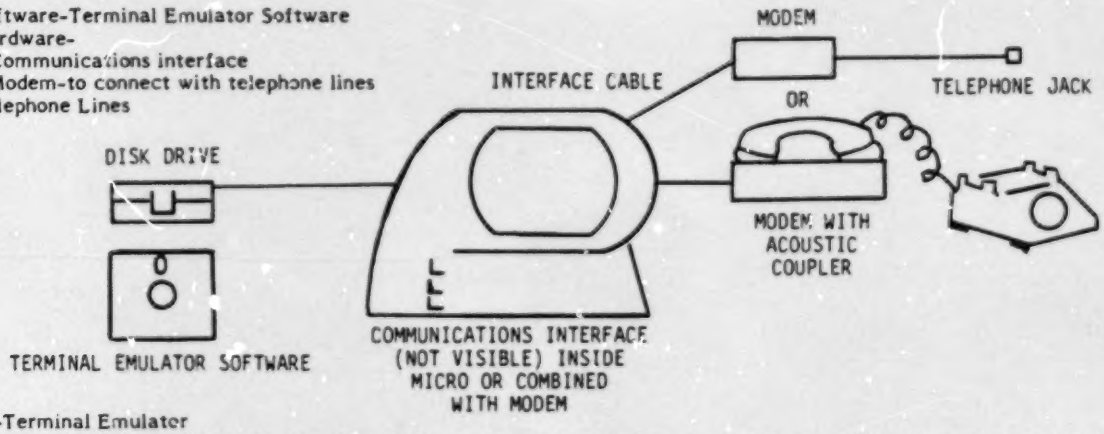
## ACCESSING ERIC WITH YOUR MICROCOMPUTER

This fact sheet assumes that you:
- o Own or have access to a microcomputer;
- o Know about ERIC; and
- o Know how to search ERIC through one of the vendors (DIALOG,BRS,or SDC).

**What is needed to make a microcomputer act as a terminal?**

Any ASCII coded (American Standard Code for Information Interchange) microcomputer can be used as a terminal when the following requirements are met:

1.) Software-Terminal Emulator Software
2.) Hardware-
   a) Communications interface
   b) Modem-to connect with telephone lines
3.) Telephone Lines




**Software**-Terminal Emulator

A computer needs certain instructions to make it emulate a terminal. It is possible to make your micro act as a dumb terminal with only the communications interface (in most situations) but for database searching other features are desirable. Software differs for every computer and operating system. It also differs in terms of special features. The need for these special features depends on individual requirements. For example, unless you have some way of storing a search whether to disk or to a printer, you won't have any means to reference the search later. It is important you experiment with the software (or have some kind of return policy) on a system like your own before purchasing.

Some special features in terminal software to be considered are listed below. These features are desirable for using your microcomputer as a terminal to do **database searching**. If you have other uses for a terminal (i.e.accessing a large mainframe computer) there will be other features needed as well,

**Print:** This feature allows the screen display to be printed. Some software will allow you to print simultaneously, while in other cases it is necessary to save to disk and load the disk's contents to the printer later.

**Save:** This feature lets you save the screen display on a disk.

**Access to Command Mode:** It is desirable to be able to turn the printer on and off, change duplex settings, and access other system commands without breaking the connection with the vendor.

**Format Display:** Material being displayed on the screen will be formatted so that complete words will appear instead of having half the word at the end of the last line and the rest of the word at the beginning of the new line.

**Default Setting:** To access different vendors, it is necessary to configure the software for that vendor. It is very useful to be able to pre-designate the configuration and then refer to that default setting (see configuring the software).

**Status Indicator:** Each software package provides certain options, i.e. printer on or off, write to disk, etc. It is helpful to be able to go to a menu that indicates what the status of these options are at any stage.

**Configuring the Software**

In order for a microcomputer to interface (access) each vendor, (BRS,DIALOG, or SDC) certain technical requirements, sometimes called telecommunications protocol, need to be set. This is called configuring the microcomputer and is part of the software. Baud rate, parity, duplex, and data length are examples of the settings that need to be made. The configuration settings vary for each vendor. Documentation from the vendor should include necessary information or they can be contacted directly.

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| DIALOG | BRS | SDC |
|---|---|---|
| 800-227-1960 | 800-833-4707 | 800-352-6689 (CA) |
| 800-982-5838 (CA) | 518-783-1161 (NY) | 800-421-7729 |

Depending on the kind of microcomputer you use as a terminal, which vendor you access, and which telephone network (Tymnet, Telenet, or Uninet) you use, certain commands need to be added to the protocol. For example, if you are using a printer during your search, certain commands are necessary to slow down transmission so that no data is lost. The vendors can give you this information.

**Hardware**

In order for data to be sent over distance it is first necessary to convert from parallel transmission (i.e. sending 8 bits of data simultaneously) to serial transmission, which sends each bit one after the other or consecutively. This is accomplished by an EIA (Electronic Industries Association) RS-232C interface, the communications interface. Each computer manufacturer has a different way of referring to this interface (see chart). It can be called a communications card, interface module, RS-232C interface or port, serial interface, or any combination of these. The RS-232C interface can also be combined with the other essential element of using your computer as a terminal, the modem.

Modem is an acronym for MOdulator/DEModulator. Because it is very expensive and inefficient to run direct lines from terminals to the large vendors, telephone lines are used to transmit the signals. To do this, serial transmissions need to be converted (or modulated) from digital to audio signals. At the other end, the audio signals have to be demodulated back into digital serial mode.

The speed at which data is being sent and received has to be the same. For this reason, some modems allow you to select the speed (either 300 or 1200) that is being used. (see configuring the software).

Lines from the RS-232C interface are connected to the modem which is then hooked into the the telephone line. This is done with either a modular jack or an acoustic coupler. A modular jack is the plug used to connect a regular telephone. If the plugs are compatible, the regular phone can be unplugged and the modem connected. An acoustic coupler is a modem that uses the handset on a telephone to connect with the phone lines. The modem has two cups that hold the receiver (handset) to allow transmission of audio signals. Usually a cable with adaptors is needed to make the connection between the RS-232C interface and the modem.

The communications interface and modem can also be combined onto a single circuit board that fits into a slot inside the micro and connects directly with the telephone.

The following is a list of some of the popular microcomputers and required componants to access the vendors.

| MICROCOMPUTER | NECESSARY HARDWARE/SOFTWARE |
|---|---|
| APPLE II, II PLUS, IIe | o telephone modem (Hayes Micromodem II suggested)<br>o communications card (Serial or Superserial)<br>o terminal emulator software optional |
| ATARI 400/800 | o modem<br>o ATARI 850 Interface module<br>o Telelink software cartridge |
| COMMODORE VIC | o VICMODEM<br>o VICTERM software |
| COMMODORE PET/CBM | o modem<br>o IEEE Interface<br>o terminal software (MACTERM software suggested) |
| IBM PERSONAL COMPUTER | o modem (Hayes Smartmodem suggested)<br>o RS-232 Interface<br>o terminal software optional |
| TEXAS INSTRUMENTS 99/4, 99/4A | o modem<br>o RS-232 Interface<br>o terminal EMULATOR II software cartridge |
| TRS-80 Model I | o modem<br>o RS-232 interface board and expansion interface<br>o RS Term software or RS model 25-1172 modem and software |
| TRS-80 Model II | o modem and RS-232 cable<br>o software optional |
| TRS-80 Model III | o modem<br>o RS-232 interface board<br>o RS Term software |
| Most CP/M-based microcomputers | o modem<br>o RS-232 port |



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